Notice of Allowability	Application No.	Applicant(s)	
	09/680,370	SCHNEIDER, CLAUS	
	Examiner	Art Unit	
	Mary J. Steelman	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *15 November 2004, 14 March 2005*.

2. ☒ The allowed claim(s) is/are *69-122 (renumbered 1-54)*.

3. ☒ The drawings filed on *15 November 2004* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other *Copy of Accepted Drawings*.

TUAN DAM
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

1. This Office Action is in response to replacement drawings received 15 November 2004 and Amendments and Remarks received 14 March 2005. Per Applicant's request, claims 35-68 have been canceled. New claims 69-122 have been added. Claims 69-122 are pending.

Drawings

2. In view of the Replacement Sheet for FIG.1 and FIG. 2, the prior objections to the drawings are hereby withdrawn.

Specification

3. Per Applicant's request, the Specification has been amended. The Abstract has been amended. Prior objections to the Specification and Abstract are hereby withdrawn.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kerry Sisselman, Reg. No. 37,237 on 23 and 24 May 2005.

The application has been amended as follows:

IN THE CLAIMS:

69. (currently amended) A method for converting interface definitions within a source code program into an intermediate format by a computer system which carries out the method, comprising the following steps:

identifying a plurality of objects, of which at least one object is an object in the source code program;

identifying at least one interface for each of at least two of the objects, wherein at least one of the interfaces is an input interface and at least one of the interfaces is an output interface;

identifying at least one link between at least two of the objects;

creating an at least two-dimensional intermediate format table with cells at ~~the~~-intersections of rows disposed in a first dimension and rows disposed in a second dimension;

assigning designations for each of the objects in the source code program to a number of first rows in the first dimension, which is equal to the number of objects in the source code program;

assigning designations for each of the links to a number of first rows in the second dimension, which is equal to the number of links;

assigning the designation of the interface to each cell at an intersection of one of the first rows in the first dimension with one of the first rows in the second dimension, by which the object associated with the first. row in the first dimension is connected to the link associated with the first row in the second dimension;

whereby the intermediate format can be inspected and changed by a user.

70. (previously presented) The method as claimed in claim 69, wherein at least one of the links is an internal link.

71. (previously presented) The method as claimed in claim 69, wherein at least one of the links is an external link.

72. (currently amended) The method as claimed in claim 71, wherein in a first specific row in the first dimension, indicating ~~the~~ a mode of ~~the~~ an external interface of ~~the~~ an at least one identified external link by assigning ~~the~~ a designation of the mode to the cells which are located at the intersections of the first specific row in the first dimension and those of the first rows in the second dimension to which designations of the external links are assigned.

73. (previously presented) The method as claimed in claim 72, wherein each of the at least one external interface is an input interface, an output interface, a bidirectional interface or an interface with an undefined flow direction.

74. (currently amended) The method as claimed in claim 69, wherein in addition,

determining ~~the~~ data types of the at least one identified interface;

in at least one second specific row in the first dimension, indicating the data types of the at least one identified interface, and assigning ~~the~~ designations for the data types associated with

the at least one identified link to cells at the intersections of one of the second specific rows in the first dimension and one of the first rows in the second dimension.

75. (currently amended) The method as claimed in claim 69, wherein in addition,

identifying at least one constant in at least one of the objects;

~~the~~ a data type of the at least one identified constant is determined;

in at least one third specific row in the first dimension the data type of the at least one constant is indicated;

in at least one first specific row in the second dimension, assigning a designation for ~~designations of~~ the at least one constant ~~are indicated~~; and

~~the~~ a designation of the data type is assigned to the cells at the intersection of one of the at least one third specific rows in the first dimension and one of the at least one first specific rows in the second dimension.

76. (currently amended) The method as claimed in claim 75, further comprising:

determining ~~the~~ a value or ~~the~~ a method of calculation of the at least one identified constant;

in at least one fourth specific row in the first dimension, indicating the value or the method of calculation of the at least one constant by assigning ~~the~~ a designation of the value or the method of calculation to cells at intersections of one of the at least one fourth specific rows in the first dimension and one of the at least one first specific rows in the second dimension.

77. (previously presented) The method as claimed in claim 75, wherein at least one of the constants is an internal constant.

78. (previously presented) The method as claimed in claim 75, wherein at least one of the constants is an external constant.

79. (currently amended) The method as claimed in claim 69, further comprising:

determining ~~the~~ a value or ~~the~~ a method of calculation of at least one identified link;

in at least one fifth specific row in the first dimension, indicating the value or the method of calculation of the at least one identified link by assigning ~~the~~ a designation of the value or the method of calculation of the at least one identified link to the cells at the intersections of one of the at least one fifth specific rows in the first dimension and one of the first rows in the second dimension.

80. (currently amended) The method as claimed in claim 69, wherein, in addition, ~~original~~ identifiers originally from the source code program are identified and are inserted into cells of specific title rows.

81. (currently amended) The method as claimed in claim 80, wherein one ~~original~~ designation originally from the source code program is the designation of one of the at least one objects in

the source code program, ~~one of the~~ at least one links or ~~one of the~~ at least one constant ~~constants~~.

82. (currently amended) The method as claimed in claim 69, wherein the designations of the at least one interface includes an identifier for the respective interface and at least one indication, which is ~~the~~ a mode or ~~the~~ a data type or ~~the~~ a value of the interface or a data converting function which is to be applied to the interface.

83. (currently amended) The method as claimed in claim 69, wherein, in addition, ~~original~~ designations, originally in the source code program, of the at least one interface are identified ~~in the source code program~~ and are used as ~~the~~ an identifier.

84. (previously presented) The method as claimed in claim 69, wherein the source code program is a code in a hardware description language.

85. (previously presented) The method as claimed in claim 84, wherein at least one object represents an interface entity of an electronic component.

86. (previously presented) The method as claimed in claim 84, wherein at least one internal link represents a signal.

87. (previously presented) The method as claimed in claim 84, wherein at least one external link represents a port.

88. (currently amended) The method as claimed in claim 69, wherein in addition,

at least one of the identified objects contains a sub source code program, which is converted into an intermediate format in the form of a sub format table;

in a cell of the row in the first dimension associated with the converted object a cross-reference to the sub format table is inserted.

89. (previously presented) The method as claimed in claim 69, wherein a cross-reference to at least one identified object which is stored as a separate unit as source code program is inserted into a cell of the row in the first dimension associated with the stored object.

90. (Currently amended) A method for converting interface information from an intermediate format table into target program code by a computer system executing the method, which comprises:

providing an at least two-dimensional intermediate format table having cells at intersections of rows disposed in a first dimension and rows disposed in a second dimension,

assigning designations for at least one object to at least one first row in the first dimension;

assigning designations for at least one link to at least one first row in the second dimension;

assigning ~~designation~~ designations of at least one interface to each cell at an-intersection of one of the first

rows in the first dimension and one of the first rows in the second dimension, by which the object associated with the first row in the first dimension is connected to the link associated with the first row in the second dimension;

creating at least one program code object on the basis of the information contained in the intermediate format table about the at least one object;

assigning internal interfaces to the at least one program code object on the basis of the information contained in the intermediate format table;

creating at least one link between program code objects on the basis of information contained in the intermediate format table about the internal links of the internal interfaces; and

assigning external interfaces to the at least one program code object on the basis of the information contained in the intermediate format table.

whereby the intermediate format table can be inspected and changed by a user.

91. (previously presented) The method as claimed in claim 90, wherein at least one interface is an input interface and wherein at least one interface is an output interface,

92. (currently amended) The method as claimed in claim 90, wherein inserting data types of the at least one interface ~~or assigned to~~ into at least one second specific row in the first dimension of the intermediate format table and designations of the data types associated with the at least one link into cells at ~~the~~ intersections of one of the at least one second specific rows in the first

dimension and one of the first rows in the second dimension for designation of the at least one link;

in addition, defining the data types of the interface assigned to the at least one program code object and associated with the at least one link.

93. (currently amended) The method as claimed in claim 90, wherein

indicating in at least one third specific row in the first dimension of the intermediate format table data types of at least one constant;

indicating in at least one first specific row in the second dimension of the intermediate format table designations of the at least one constant;

associating designations of the data type of the respective constant with cells at the intersections of at

least one third specific row in the first dimension and the at least one first specific row in the second dimension;

in addition, defining at least one constant in the at least one program code object or in ~~the~~ a general part of the target program code.

94. (currently amended) The method as claimed in claim 90, ~~wherein~~ further comprising:

indicating data types of at least one constant in at least one third specific row in the first dimension of the intermediate format table;

indicating designations of the at least one constant in at least one first specific row in the second dimension of the intermediate format table;

associating designations for the data type of the respective constant with cells at the intersections of at

least one third specific row in the first dimension and the at least one first specific row in the second dimension;

in addition, defining at least one constant in the at least one program code object and in ~~the~~ a general part of the target program code.

95. (currently amended) The method as claimed in claim 93, wherein

in at least one fourth specific row in the first dimension of the intermediate format table, a ~~the~~ value or ~~the~~ a method of calculation of the at least one constant is indicated by assigning the value or the method of calculation to the cells at the intersections of one of the at least one fourth specific rows in the first dimension and one of the at least one first specific rows in the second dimension;

in addition, the value or the method of calculation of the at least one constant is assigned to the at least one constant defined in the values program code.

96. (previously presented) The method as claimed in claim 93, wherein at least one of the constants is an internal constant.

97. (previously presented) The method as claimed in claim 93, wherein at least one of the constants is an external constant.

98. (currently amended) The method as claimed in claim 90, wherein

in at least one fifth specific row in the first dimension of the intermediate format table, a ~~the~~ value or ~~the~~ a method of calculation of the at least one link is indicated by assigning the designation of the value or the method of calculation to cells at the intersections of the at least one fifth specific raw in the first dimension and one of the first rows in the second dimension for the designation of the at least one link;

in addition, the value or the method of calculation of the at least one link is assigned to ~~the~~ a link generated in the target program code.

99. (currently amended) The method as claimed in the claim 90, wherein designations of the at least one object, the at least one link or ~~the~~ at least one constant are inserted into cells of specific title rows of the intermediate format table.

100. (currently amended) The method as claimed in the claim 90, wherein

designations of the at least one object, the at least one link and ~~the~~ at least one constant are inserted into cells of specific title rows of the intermediate format table.

101. (currently amended) The method as claimed in the claim 90, wherein

in addition, the at least one program code object, the at least one link or ~~the~~ at least one constant are named on the basis of the designations in the cells of ~~the~~ specific title rows of the intermediate format table.

102. (currently amended) The method as claimed in the claim 90, wherein

in addition, the at least one program code object, the at least one link and ~~the~~ at least one constant are named on the basis of the designations in the cells of ~~the~~ specific title rows of the intermediate format table.

103. (currently amended) The method as claimed in claim 90, wherein

in at least one cell of the row in the first dimension of the intermediate format table associated with the object a cross-reference to a sub format table is inserted;

in addition, the program code object generated from the object is connected to ~~the~~ a sub program code generated from the sub format table.

104. (currently amended) The method as claimed in claim 90, wherein

in at least one cell of the row in the first dimension of the intermediate format table associated with an object, a cross-reference to a source code program stored as a separate unit is inserted;

in addition, the program code object generated from the object is linked to the source code program stored as a separate unit.

105. (currently amended) An apparatus, comprising a computer system to create an intermediate format table to store interface information in a computer system, which interface information is contained in a program code, wherein the intermediate format table includes:

at least two dimensions;

cells at intersections of rows disposed in a first dimension and rows disposed in a second dimension;

a number of first rows in the first dimension, which is equal to the number of at least one object in the program code, have designations for each of the objects assigned thereto;

a number of first rows in the second dimension, which is equal to the number of at least one link in the program code, have designations for each of the links assigned thereto; and

each cell at an intersection of one of the first rows in the first dimension and one of the first rows in the second dimension have ~~the~~ a designation of an interface assigned thereto by which the object associated with the first row in the first dimension is connected to the link associated with the first row in the second dimension.

whereby the intermediate format table storing specifically arranged interface information can be inspected and changed by a user.

106. (previously presented) The apparatus as claimed in claim 105, wherein at least one of the links is an internal link.

107. (previously presented) The apparatus as claimed in claim 105, wherein at least one of the links is an external link.

108. (previously presented) The apparatus as claimed in claim 105, wherein at least one of the interfaces is an internal interface.

109. (previously presented) The apparatus as claimed in claim 105, wherein at least one of the interfaces is an external interface,

110. (currently amended) The apparatus as claimed in claim 109, wherein ~~the~~ a mode of the at least one external interface of the at least one external link is indicated in one first specific row in the first dimension of the intermediate format table by assigning ~~the~~ a designation of the mode to cells at the intersections of the first specific row in the first dimension and the first rows in the second dimension to which designations of the external links are assigned.

111. (currently amended) The apparatus as claimed in claim 105, wherein in at least one second specific row in the first dimension, ~~the~~ data types of the at least one interface are indicated by assigning ~~the~~ a designation of the data types to cells at the intersections of one of the at least one second specific rows in the first dimension and one of the first rows in the second dimension.

112. (currently amended) The apparatus as claimed in claim 105, wherein in at least one third specific row in the first dimension, ~~the~~ data types of at least one constant are indicated by assigning the designation of the data types to cells at the intersections of the at least one third specific row in the first dimension and one of at least one first specific rows in the second dimension for designation of the at least one constant.

113. (currently amended) The apparatus as claimed in claim 112, wherein in at least one fourth specific row in the first dimension, a ~~the~~ value or a ~~the~~ method of calculation of at least one

constant is indicated by assigning the designation of the value or the method of calculation to cells at the intersections of one of the at least one fourth specific row in the first dimension and one of the at least one first specific rows in the second dimension.

114. (previously presented) The apparatus as claimed in claim 112, wherein at least one of the constants is an internal constant.

115. (previously presented) The apparatus as claimed in claim 112, wherein at least one of the constants is an external constant.

116. (currently amended) The apparatus as claimed in claim 105, wherein, in at least one fifth specific row in the first dimension, a ~~the~~ value or a ~~the~~ method of calculation of the at least one link is indicated by assigning the designation of the value or the method of calculation to cells at the intersections of the at least one fifth specific row and one of the first rows in the second dimension for designation of a link.

117. (currently amended) The apparatus as claimed in claim 105, wherein the ~~original~~ designation of the at least one object, ~~the~~ at least one link or ~~the~~ at least one constant originally in the program code is inserted into cells of specific title rows.

118. (currently amended) The apparatus as claimed in claim 105, wherein the ~~original~~ designations of the at least one object, the at least one link and ~~the~~ at least one constant originally in the program code are inserted into cells of specific title rows.

119. (currently amended) The apparatus as claimed in claim 105, wherein each designation of one o£ the at least one interfaces ~~comprises and~~ includes an identifier for the respective interface, as well as at least one indication, wherein each of the indications is either a ~~the~~ mode or a ~~the~~ data type or a ~~the~~ default value of the interface or a data converting function to be applied to the interface.

120. (currently amended) The apparatus as claimed in claim 105, wherein any desired cells of the intermediate format table ~~comprise~~ include annotations, which serve to control programs for analyses of information contained in the intermediate format table.

121. (currently amended) The apparatus as claimed in claim 105, wherein any desired cells of the intermediate format table ~~comprise~~ include annotations which serve ~~for the~~ as information ~~of~~ for the user.

122. (currently amended) The apparatus as claimed in claim 7.20, wherein

the annotations are contained in at least one further dimension of the intermediate format table,

specific types of annotations are assigned to rows in the further dimension, and

at those intersections of the rows in the first dimension or the rows in the second dimension of the intermediate format table which govern the annotations ~~and~~ with the row in the further dimension which is assigned to ~~the~~ a specific type of annotation, an ~~to the inserted the~~ annotation is inserted.

--END--

5. The following is an examiner's statement of reasons for allowance:

As Applicant has pointed out on page 29, 1st paragraph, of Remarks received 14 March 2005, cited prior art of record, taken alone or in combination fails to disclose "an intermediate format table containing interface information." Additionally on page 30, 1st paragraph, cited prior art of record, taken alone or in combination fails to "allow a user to visually inspect interface information and to easily change interface information." Both features are recited in all independent claims, claims 69, 90, and 105. Thus all remaining dependent claims, 70-89, 91-104, and 106-122 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Steelman, whose telephone number is (571) 272-3704. The examiner can normally be reached Monday through Thursday, from 7:00 AM to 5:30 PM If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan

Q. Dam can be reached at (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mary Steelman

05/24/2005

TUAN DAM
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Accepted by Examiner 5.22.05 MS

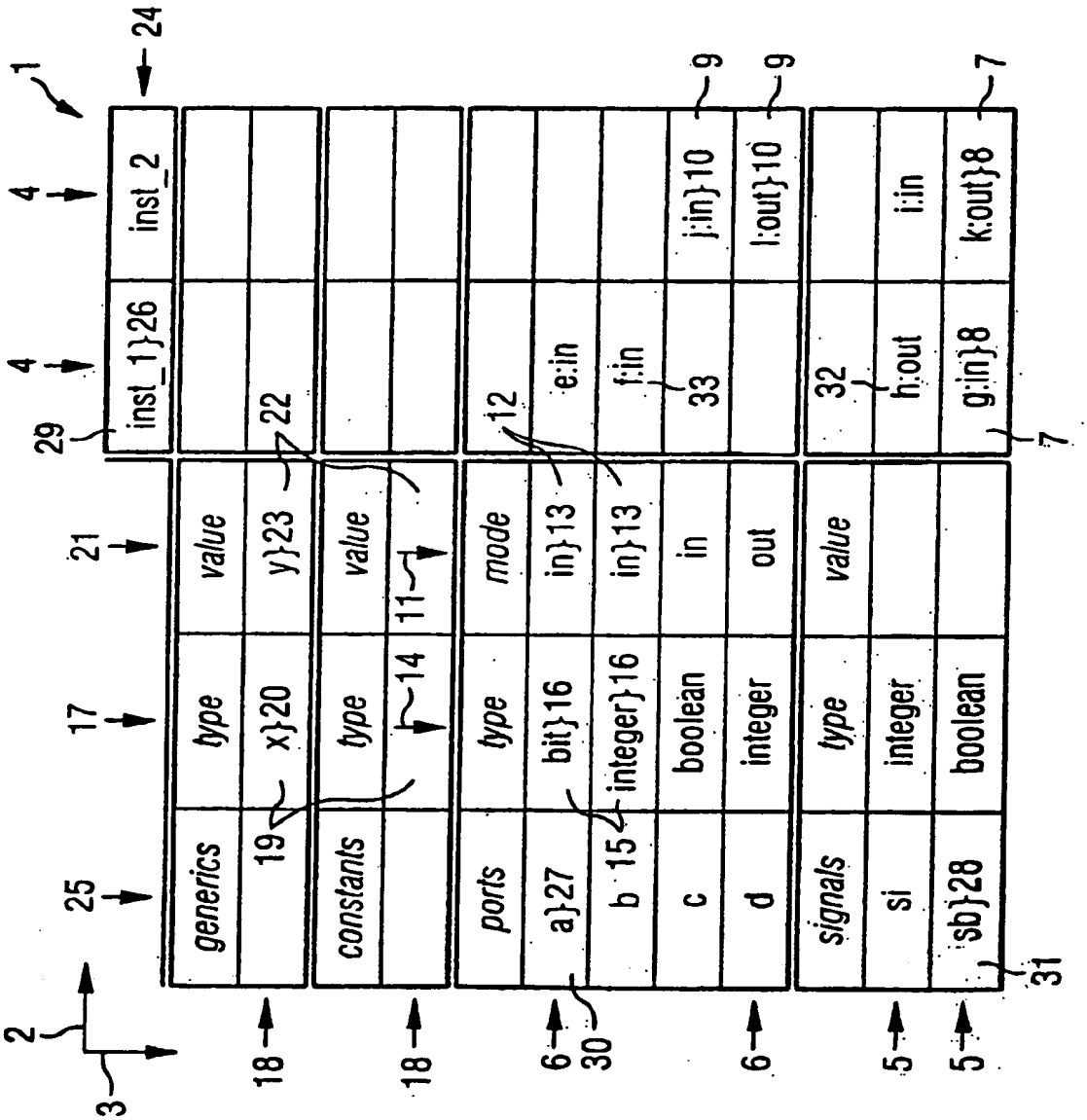

FIG 1

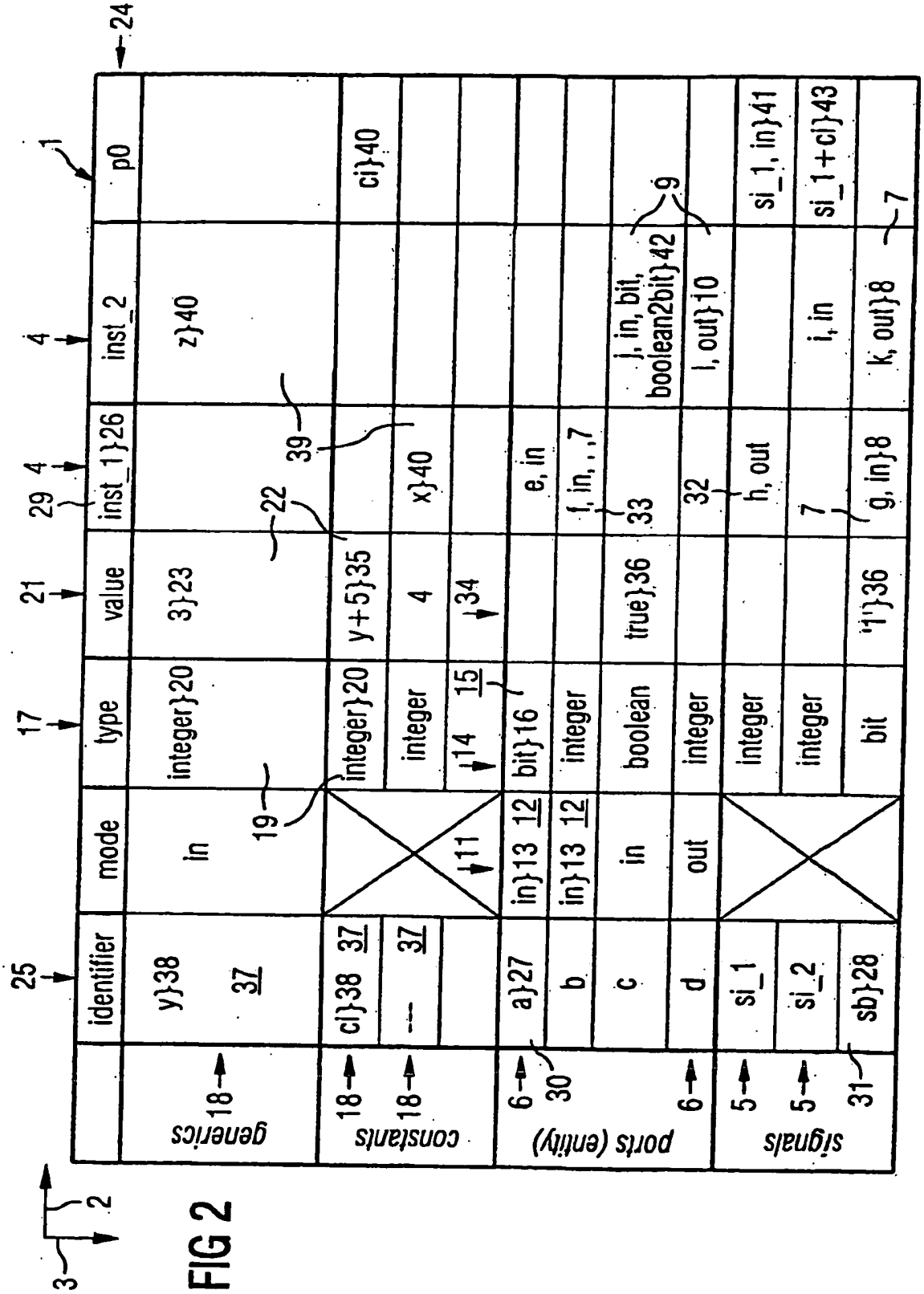
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FIG 2